The following listing of claims will replace all prior versions, and listings, of

claims in the application:

**Listing of Claims:** 

Claims 1 – 20 (Cancelled)

Claim 21 (New) An apparatus for producing electromagnetic radiation, the

apparatus comprising

a superluminescent light-emitting diode the superluminescent light emitting

diode comprising a semiconductor heterostructure forming a PN junction and

a waveguide defining an optical beam path,

the heterostructure including a gain region and an absorber region in series

with the gain region in the optical beam path,

a first contact for applying a voltage to the PN junction in its forward direction

in the in the gain region, so as to produce light emission from the gain region

and along the optical beam path,

and a second contact contacting the PN junction in the absorber region, the

second contact forming a permanent electrical contact between a P doped

side and an N doped side of the PN junction in the absorber region, so that

Page 3 of 10

the PN junction in the absorber region is unbiased,

the apparatus further comprising a housing carrying the superluminescent light-emitting diode, the housing comprising a symmetry axis, wherein said

optical beam path is parallel to said symmetry axis.

Claim 22 (New) The apparatus according to claim 21, wherein said second contact

includes a wire contact between a layer having the electrical potential of the P side

and a layer having the electrical potential of the N side.

Claim 23 (New) The apparatus according to claim 21, wherein the PN junction

comprises an n-doped side and a p-doped side, and wherein at least one of the n-

doped side and the p-doped side is connected, by the second contact, to a metallic

surface outside the heterostructure.

Claim 24 (New) The apparatus according to claim 21, wherein the waveguide

comprises two end facets, limiting the waveguide structure in a longitudinal direction

parallel to the optical beam path, the end facets being perpendicular to the optical

beam path.

Claim 25 (New) The apparatus according to claim 21, wherein the PN junction in the

gain region and in the absorber region is a bulk PN junction comprising a p-doped

component and an n-doped component, both having a layer thickness exceeding

10 nm.

Claim 26 (New) The apparatus according to claim 21, wherein the semiconductor

heterostructure in the gain region includes a multiple quantum well (MQW) structure

and wherein the PN junction is formed in said multiple quantum well structure, or

wherein the semiconductor heterostructure in the gain region includes quantum

wires or quantum dots.

Claim 27 (New) The apparatus according to claim 21, wherein the waveguide is

index guided.

Claim 28 (New) The apparatus according to claim 21, wherein the waveguide is gain

guided.

Claim 29 (New) The apparatus according to claim 21, wherein the semiconductor

heterostructure comprises a first cladding layer and a second cladding layer, the PN

junction comprises a PN-junction layered structure between the first and the second

cladding layer, the PN-junction layered structure comprises a single quantum well

structure or a multiple quantum well structure or a bulk layer of a p-doped material

and a bulk layer of an n-doped material, the heterostructure further comprises the

first cladding layer being in electrical contact to a first metal electrode, the second

cladding layer being in electrical contact to a second metal electrode, the first metal

electrode or the second metal electrode or both metal electrodes being interrupted

between the gain region and the absorber region.

Page 5 of 10

Amendment Dated: November 14, 2005

Reply to Office action of: August 22, 2005

Claim 30 (New) The apparatus according to claim 21, wherein said housing is a

TO-can.

Claim 31 (New) The apparatus according to claim 21, wherein superluminescent

light-emitting diode is placed centrally in the housing and the beam path coincides

with the symmetry axis.

Claim 32 (New) The apparatus according to claim 21, wherein the housing

comprises a disk-shaped body with two parallel facets, the symmetry axis being a

symmetry axis of said body and being perpendicular to said facets, the housing

further comprising electrical contacts penetrating the body in the direction of the

symmetry axis, the superluminescent light emitting diode being provided in a

semiconductor chip attached to a facet of said body.

Claim 33 (New) The apparatus according to claim 32, wherein the beam path is

concentric with the disc-shaped body.

Claim 34 (New) The apparatus according to claim 21, further comprising monitoring

means for monitoring a photocurrent generated by radiation emitted in the gain

region and absorbed in the absorber region of the PN junction, thereby producing a

monitoring signal being a measure of the light emitted in the gain region.

Page 6 of 10